

# AMERICAN MUSEUM *Novitates*

PUBLISHED BY  
THE AMERICAN MUSEUM  
OF NATURAL HISTORY

CENTRAL PARK WEST AT 79TH STREET  
NEW YORK, N.Y. 10024 U.S.A.

NUMBER 2597

JUNE 8, 1976

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## Notes on a Collection of Birds From the Paraguayan Chaco

LESTER L. SHORT<sup>1</sup>

### ABSTRACT

Systematic, distributional, molt, and breeding data are provided for 723 specimens obtained from the collection of Jacob Unger, mainly in the vicinity of Lichtenau in the Paraguayan chaco. The specimens represent 180 species, including four (*Coccyzus erythrophthalmus*, *Lepasthenura platensis*, *Pseudocolopteryx acutipennis*, and *Aimophila strigiceps*) reported for the first time from Paraguay based on this collection. The status of the tinamou *Nothura "chacoensis"* is discussed, and warrants treatment as a subspecies of *N. maculosa*. A problematical nighthawk specimen is assigned tentatively to *Chordeiles mi-*

*nor panamensis*  $\cong$  *neotropicalis*, and certainly represents a Middle American or Colombian population. The first western Paraguayan hybrid flickers (*Colaptes campestris campestris* X *campestroides*) are described. Data are presented on the features and polymorphism of the woodpecker *Dryocopus schulzi*. *Agriornis microptera microptera* winters northward from Patagonia to the Paraguayan chaco and Cochabamba, Bolivia. *Anthus chacoensis* is noted as a valid species, with a breeding range indicated for the first time (Cordoba, Argentina). The status of many subspecies is discussed.

### INTRODUCTION

Several recent shipments of birds from the collection of Jacob Unger have come to the American Museum of Natural History and are the subject of the present report. A total of 723 specimens were taken at diverse seasons during 1960 to 1974 in the Paraguayan chaco, mainly in the vicinity of Lichtenau (approximately lat. 22°49' S, long. 59°39' W) at about 180 km. west of the Paraguay River, almost due west of Puerto Pinasco.

The chaco, a low, flat, xeric woodland area, is situated inland from the sea in south-central

South America. Its features and birds were reported by Short (1975). Other relatively recent important works involving Paraguayan chaco birds are those of Steinbacher (1962, 1968). The Lichtenau area is in the central chaco of Paraguay, well west of the pantanal (wet palm savanna) that borders the Paraguay River, and just east of the driest portion of the Paraguayan chaco (which is less xeric than is the very dry central Argentine chaco). Maps indicating the location of Lichtenau were provided by Steinbacher (1962, p. 12) and by Short (1972a, p. 32).

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Measurements of wing length that are mentioned are those of the chord of the wing.

All birds in the collection obtained from Mr. Unger are treated herein (a few also have been reported elsewhere, as cited below). The following systematic list is in the order of that in Short (1975). Authorities for the scientific names employed here can be found in Meyer de Schauensee (1966), and in the various volumes of the Catalogue of Birds of the Americas by Hellmayr, by Hellmayr and Conover, or by Cory. Only new data are presented, hence some species merely are listed for the sake of completeness.

I am grateful to Drs. Dean Amadon, Eugene Eisenmann, John Farrand, Wesley E. Lanyon, and the late Charles Vaurie for assistance in identifying specimens of species of groups in which they specialize, or for other assistance in the course of this investigation.

#### SYSTEMATIC LIST

##### FAMILY TINAMIDAE

*Crypturellus tataupa tataupa*. Tataupa Tinamou. Females, May 28, October 30. The latter bird was noted as breeding.

*Nothura (Nothoprocta) cinerascens cinerascens*. Brushland Tinamou. One male, July 1, three males, November 10 to 28; females, November 10 and 22. November birds with gonads in breeding condition.

*Nothura boraquira marmorata*. White-breasted Tinamou. Males, March 27, April 30, October 17; female, July 8; immature male, May 28. This species, and especially the chaco form, closely resembles *N. cinerascens* and almost can be considered a sibling species with the latter. Olrog (1963, p. 425) noted that the behavior of *boraquira* is more like that of *cinerascens* than that of *Nothura darwinii* and *N. maculosa*. It resembles *cinerascens* in its general pattern and shape of bill, color tone, pattern of wing markings (no barring on inner vanes), barring of the sides and flanks, and pale (whitish) underparts. Indeed, the weakly defined chaco race *marmorata* tends away from caatinga (zone of arid scrub woods of northeastern Brazil) *N. b. boraquira* and toward *N. cinerascens* in its subspecific characters, namely, less rusty, browner nape; darker brown and grayer, less rusty back; blacker wing coverts;

and more grayish, less rusty breast. *Nothura boraquira* differs from *N. cinerascens* in its smaller size (no overlap) and buffier, less gray coloration. The October and March males are in breeding condition, implying a long breeding season. The immature male differs from adults in its browner back color, less barred flanks, and especially, its black-spotted neck and breast. I have compared it with two similarly spot-breasted, undoubted immatures of *N. b. boraquira*. As pointed out in Short (1975), the rather weak differentiation of chaco *marmorata* implies a recent contact with caatinga *boraquira*.

*Nothura maculosa chacoensis*. Spotted Nothura. Males, October 16, and November 12; females, May 11, August 11, September 28, October 15, and November 12. This chaco form has been treated as a species, but indications are that it interbreeds with adjacent pantanal *N. m. paludivaga* in the narrow zone west of the Paraguay River where the palm savanna or pantanal meets the dry chaco woodland. The seven specimens show considerable variation in the tone of the underparts, the amount of barring on the flanks, and especially the spotted and streaked upper breast, and the barring of the upperparts. Generally, *chacoensis* is vermiculated, with deep bars sparse dorsally, but two of the seven specimens are moderately barred and one female is barred as heavily as in other races of *maculosa*. One female (May 11, fresh plumage, and in fact molting), sparsely barred dorsally, has strong tan ventral coloring, and its upper breast is entirely streaked, the usual dark spots being assimilated into streaks such that there is no apparent spotting. These specimens are easily separable from *paludivaga* by their upperpart color and pattern, with a rufescent tone (little or no gray cast), and much lighter color than in the heavily barred, blacker *paludivaga*. Ventrally, they tend to be paler, and the spot-streaks of the upper breast are smaller and finer. Although *chacoensis* is smaller in size than *paludivaga* and other races of *maculosa*, except *cearensis*, the difference among forms of *N. maculosa* is not great. There is overlap, especially between adjacent races *paludivaga* and *chacoensis* (12 specimens of the former, 22 of the latter available for comparison), and only very small *chacoensis* can be separated mensurally. The difference between *chacoensis* and

*paludivaga* in length of middle toe given earlier (Short, 1975, p. 190) does not hold, for I now have measurements of *chacoensis* falling within the range of measurements of *paludivaga*, even to their upper extreme (30.5 mm.). Using wing length, bill length, tarsal length, and length of middle toe, it can be seen that about one-quarter of *chacoensis* specimens are separable from *paludivaga* on the basis of lesser measurements. The sparse material I have seen of little known *N. m. pallida* (northwestern Argentina north to Formosa and extreme southwestern Paraguay) indicates that *pallida* is small, closely approaching *chacoensis* in size. Conover (1950) mentioned specimens possibly intermediate between *chacoensis* and *paludivaga* from northern Paraguay. A female specimen (AMNH 802523) from 60 km. east of Orloff, in the eastern Paraguayan chaco, taken in November, 1956, shows a gray-brown mixture dorsally with heavy dorsal barring, rather buffy underparts, strong breast streaking, and is within the size overlap between *paludivaga* and *chacoensis*; it appears to be an intermediate (intergrade) specimen. The birds taken from September to November were noted as having enlarged gonads.

*Eudromia formosa mira*. Quebracho Crested Tinamou. Males, February 25, June 30; partly grown immature female, December 19. This little known form differs hardly at all from the nominate Argentine subspecies, being a bit browner, less gray above (including the neck). The February male had enlarged testes. The half-sized immature bird closely resembles the adults, but is a bit duller, with a darker neck, and the inner vanes of its outer primaries are barred basally, showing a tendency toward the barred feathers of *E. elegans*. It might prove useful to compare *E. formosa* (see also Olog, 1959) with the nearest form of *E. elegans*, namely *E. e. magnistriata* of Santiago del Estero and adjacent Córdoba. Ventrally *E. formosa* is whiter, although varying considerably; its breast and side bars bear strong shaft streaks, forming inverted T-bars that are only hinted at in *elegans*. The upper breast is patterned with a combination of dark shaft streaks and several connected bars on a brown and buff background; in *elegans* the barring is weakly developed, the bars are not connected with the shaft streaks, and, if present, are finer,

and the background is decidedly grayer and less buff. The dorsal pattern of *formosa* is brown with fine vermiculations, some bars, and large buff spots; *elegans* is grayer with smaller, more numerous spots. The tail of *elegans* is barred buffy white and brownish black, and that of *formosa* has vermiculations (much finer barring) and dark marks about the shaft, but the pattern is very much browner and less contrasting. Finally, the outer primaries of *formosa* are unbarred on the inner vane, or bear vague traces of barring basally, whereas *elegans* has strongly barred primaries (both vanes). *Eudromia formosa* may be a trifle smaller than *E. elegans magnistriata*, but more specimens must be measured to acquire data to substantiate or nullify this point.

#### FAMILY PODICIPEDIDAE

*Podiceps dominicus speciosus*. Least Grebe. Males, February 12, November 19; female, November 19; downy young male and female, February 12. The three adults show enlarged gonads. The adults measure 90 to 98 mm. in wing length, agreeing with the 92 to 98 mm. reported for six birds from Orloff in the Paraguayan chaco by Steinbacher (1962), and with measurements of the wide ranging *speciosus* (Hellmayr and Conover, 1948).

*Podiceps rolland chilensis*. White-tufted Grebe. Female, February 15. Ovary not enlarged (breeds in the area, see Steinbacher, 1962).

*Podilymbus podiceps antarcticus*. Pied-billed Grebe. Female, December 13. Ovary enlarged. Steinbacher (1962) reported young birds from nearby Orloff during March.

#### FAMILY ARDEIDAE

*Butorides striatus striatus*. Striated Heron. Females, November 26, December 24; immature female, December 24. The November bird had a large ovary, and, with the immature bird above and Steinbacher's (1962) November birds with large gonads from the Paraguayan chaco, this indicates breeding in September to November. The adults and one other female from eastern Paraguay are exceptionally rufescent on the sides and back of the neck, and few South American specimens match them. I can find no clear indication of the traits of "*fuscolis*" given by Hellmayr

and Conover (1948) for southern South American birds, and prefer to treat this as a synonym of *B. s. striatus*.

*Egretta thula thula*. Snowy Egret. Female, April 29.

#### FAMILY ANATIDAE

*Callonetta leucophrys*. Ringed Teal. Male and female, November 14, both with enlarged gonads.

*Oxyura dominica*. Masked Duck. Two males, December 27; females, July 14, December 14, and two on December 27. One December male and two December females had enlarged gonads. One male shows a 14 by 10 mm. patch of immaculate white on the forethroat, just inside the black "mask" area, with scattered white spots around it. Only one of 14 other adult males in the American Museum of Natural History collection shows a hint of this patch, and the patch is much smaller. The July female, like other worn birds I have seen, has the tail worn to a "frazzle" tip, the bare shafts with some barbs extending 32 mm. beyond the unworn part of the feathers.

#### FAMILY ACCIPITRIDAE

*Chondrohierax uncinatus uncinatus*. Hook-billed Kite. Male adult, January 1, testes enlarged.

*Gampsonyx swainsonii swainsonii*. Pearl Kite. Female, January 5. Ovary enlarged. Sides immaculate white.

*Ictinia mississippiensis*. Mississippi Kite. Female, February 19.

*Accipiter bicolor guttifer*. Bicolored Hawk. Immature "male," February 8. The bird is large, and is heavily streaked with a strong rusty buff background color ventrally, hence represents an immature female of this race.

*Accipiter striatus erythrocnemius*. Sharp-shinned Hawk. Females, May 15, June 20. These have the shallow streaks and bars of this subspecies. Breeds (Steinbacher, 1962).

*Buteogallus urubitinga urubitinga*. Great Black Hawk. Adult male, August 12.

*Buteo albicaudatus albicaudatus*. White-tailed Hawk. Adult male, August 22, immature female, April 16.

#### FAMILY FALCONIDAE

*Falco ruficularis ruficularis*. Bat Falcon. Female, May 25, ovary enlarged. I follow Brown and Amadon (1968) in treating all South American and Middle American birds, except those of western Mexico, as representing this subspecies.

*Falco femoralis femoralis*. Aplomado Falcon. Male, February 21.

#### FAMILY CRACIDAE

*Ortalis canicollis canicollis*. Chaco Chachalaca. Two males, June 8, female, February 1. The males measure 218 and 232 mm., and the female 212 mm. in wing length. Both males have rufous only in the outer two tail feathers, and the female has some rufous at the tip of the third pair from the outside. Vaurie (1964) has pointed out that variation is too great to admit Steinbacher's *O. c. ungeri* as a subspecies from the Paraguayan chaco. These three birds are assignable to the wide-ranging, small, and pale nominate *canicollis*. The female was commencing to molt (inner primaries), and had an enlarged ovary. The males are in fresh plumage, one of them just terminating the annual molt (central rectrices almost fully grown).

#### FAMILY ARAMIDAE

*Aramus guarauna guarauna*. Limpkin. Female, February 13. With a wing length of 353 mm., this may be a mis-sexed bird. It is clear from measurements given by Hellmayr and Conover (1942) that southern South American Limpkins are larger (longer winged) than are those from the northern part of the continent. One can state that there is a cline, without treating the matter nomenclaturally. The specimen reported here is very long-winged, but at best the increase in wing length southwardly would seem to involve only a 5 to 7 percent increase, not enough to warrant racial treatment (as "*carau*") of southern birds apart from *guarauna*.

#### FAMILY RALLIDAE

*Rallus maculatus maculatus*. Spotted Rail. Male, October 27, enlarged testes.

*Neocrex erythrops olivascens*. Paint-billed Crane. Male, February 18, female, April 12, both with enlarged gonads.

*Porphyriops melanops melanops*. Spot-flanked Gallinule. Males, January 25, February 21, April 22, November 19, December 20; female, February 21. All have enlarged gonads except the April bird, and the two February specimens had much enlarged gonads. The January and February birds were molting.

*Gallinula chloropus galeata*. Common Gallinule. Female, February 12.

*Porphyryla martinica*. Purple Gallinule. Two males, April 3; female, January 2, all with enlarged gonads.

*Fulica leucoptera*. White-winged Coot. Males, November 10, January 2; two females, January 2 all with enlarged gonads.

#### FAMILY JACANIDAE

*Jacana jacana jacana*. Wattled Jacana. Male, January 25; female, same date, both with much enlarged gonads.

#### FAMILY ROSTRATULIDAE

*Nycticryphes semicollaris*. South American Painted Snipe. Two males, February 12; two females, same date, all with enlarged gonads, one female with much enlarged ovary.

#### FAMILY CHARADRIIDAE

*Charadrius collaris*. Collared Plover. Males, November 26, December 14.

#### FAMILY SCOLOPACIDAE

*Calidris fuscicollis*. White-rumped Sandpiper. Male, November 6.

*Calidris melanotos*. Pectoral Sandpiper. Male, November 26.

*Tringa solitaria cinnamomea*. Solitary Sandpiper. Three males, November 6 to 21.

#### FAMILY RECURVIROSTRIDAE

*Himantopus melanurus*. White-backed Stilt. Male, female, July 19.

#### FAMILY COLUMBIDAE

*Columba picazuro picazuro*. Picazuro Pigeon. Three females, January 9 and April 22. The two April birds are completing the molt, and the January bird had a much enlarged ovary. Chaco birds assigned to this subspecies are noticeably paler, grayer, less violaceous pink than are specimens from east, northwest and west of there.

*Columba cayennensis sylvestris*. Pale-vented Pigeon. Two females, March 15.

*Zenaida auriculata chrysauchenia*. Eared Dove. Males, January 9, July 4, and (two) October 27. Testes enlarged in October males, very much enlarged in January bird. Races of this species need to be worked out carefully, with abundant material.

*Columbina squammata squammata*. Scaly Ground Dove. Females, January 7, and (two) May 6. The January bird was in breeding condition.

*Columbina talpacoti talpacoti*. Ruddy Ground Dove. Six males from December and January, one April male (mislabelled female); two females, February 20, one immature female, February 9. The December and January males all have enlarged testes, but gonads are not enlarged in the others.

*Columbina picui picui*. Picui Dove. Males, October 12 and February 20, and female (labeled male), July 4. Both males with enlarged testes.

*Leptotila verreauxi decipiens*. White-tipped Dove. Males, July 7, October 31; females, July 12, November 27. Gonads enlarged in October and November birds, which are very worn.

#### FAMILY PSITTACIDAE

*Aratinga acuticauda acuticauda*. Blue-crowned Parakeet. Male, October 19; females, May 30, October 19. The October birds had enlarged gonads.

*Myiopsitta monachus cotorra*. Monk Parakeet. Females, May 8, September 2. I find essentially no differences separating northern chaco (*cotorra*) from southern and southwestern birds (*calita*), often "corrected" to *catita* after the Spanish name of the bird, but see Naumburg, 1930, p. 129) and treat *calita* as a synonym of *cotorra*. This small form differs in size and color from

more eastern and southeastern *monachus*, and from Bolivian *luchsi*.

*Amazona aestiva xanthopteryx*. Turquoise-fronted Parrot. Males, April 25, November 7; female, April 25. The November male had enlarged testes; the other male is completing its annual molt. These birds all have the bend of the wing red proximally, but almost entirely yellow distally, as do many *xanthopteryx* from farther south and west. Intermediates between *xanthopteryx* and nominate *aestiva* come from northwestern Paraguay and southern Mato Grosso (specimens, AMNH).

#### FAMILY CUCULIDAE

*Coccyzus cinereus*. Ash-colored Cuckoo. Male, December 27; females, January 3 and June 15. The first two of these have enlarged gonads; the third has not yet completed its wing molt.

*Coccyzus melacoryphus*. Dark-billed Cuckoo. Males, February 25, July 5, November 29; female, December 22; immature male, November 29; immature females, February 2 and 20, May 30. The November and December adults had enlarged gonads.

*Coccyzus americanus*. Yellow-billed Cuckoo. Four males, August 12 to November 30; two females, May 1 and September 12. The extreme dates for this migrant from North America, August 12 and May 1, leave but three months when this species is not in the chaco. Extreme measurements for these birds are 137 and 149 mm., both males. I am unable to separate the weakly defined races of this species with the material at hand.

*Coccyzus erythrophthalmus*. Black-billed Cuckoo. Female, December 11. Previously reported (Short, 1972b) as the first Paraguayan specimen of this cuckoo.

*Crotophaga ani*. Smooth-billed Ani. Two males and a female, all in breeding condition, between November 29 and December 18.

*Guira guira*. Guira Cuckoo. Male, October 18 and female, October 11, both with enlarged gonads.

*Tapera naevia chochi*. Striped Cuckoo. Males, October 15, November 27; females, May 2, October 12 and 15, and November 27; immature male, March 3. All adults except the May bird had enlarged gonads.

#### FAMILY TYTONIDAE

*Tyto alba tuidara*. Barn Owl. Male, December 10. A very white bird, almost unspotted below, approaching in color Amazonian specimens.

#### FAMILY STRIGIDAE

*Otus choliba choliba*. Tropical Screech Owl. Four February males; a February female, an immature female from March 5; and an immature questionably a male, February 8. All February adults are in middle or late stages of wing molt. These birds are a rather uniform grayish, but two adults are grayer, the other three being a paler, browner gray.

*Bubo virginianus nacurutu*. Great Horned Owl. Male and female in fresh plumage taken 90 km. southwest of Lichtenau on August 14.

*Glaucidium brasilianum tucumanum*. Ferruginous Pygmy-owl. Males, taken March, August, October, November. The last two birds had enlarged testes. Two of these are in gray phase, two are in rufous phase. The chaco race *pallens* Brod-korb may be recognizable, although resembling *tucumanum* of northwestern Argentina, because of its smaller size; but one can simply state that *tucumanum* tends to be smaller and paler northwardly. Compared with Santiago del Estero *tucumanum* the four males from Lichtenau are smaller (shorter winged); the gray phase birds are less spotted, and the rufous phase birds are nearly identical. Mato Grosso specimens, even from the far south of that state, are larger and represent *brasilianum*. Eastern Paraguayan specimens are very dark, and represent *ferox*, if that form is distinct from *brasilianum*.

*Athene cunicularia cunicularia*. Burrowing Owl. Two males, April 24. See racial discussion by Short (1975).

*Strix rufipes chacoensis*. Rufous-legged Owl. Males, February 8 and 13, and October 22, last with enlarged testes.

*Asio flammeus suinda*. Short-eared Owl. Female, October 12 (gonads not enlarged).

#### FAMILY NYCTIBIIDAE

*Nyctibius griseus cornutus*. Common Potoo. Males, October 27, December 4; female, February 8. Both males had enlarged testes.



## FAMILY CAPRIMULGIDAE

*Caprimulgus parvulus parvulus*. Little Nightjar. Females, January 5, December 9; immature female, January 3. Birds from the chaco and northeast to the caatinga tend to be smaller than those from farther south (Argentina), the variation probably being clinal.

*Podager nacunda nacunda*. Nacunda Nighthawk. Male and female, May 5, fresh plumaged.

*Chordeiles minor panamensis* > *neotropicalis*? Common Nighthawk. Male, February 5. This specimen was examined by Eisenmann after I found that it strongly resembled *panamensis* (see Eisenmann, 1962), the winter range of which is unknown. It is small in size (wing length 176 mm.) and rather rusty in color, approaching *panamensis*, but, according to Eisenmann (in lett.) "it is not typical of that form, which tends to be even darker and more rufescent with a narrower wing-band. Probably it belongs to the Central American population intermediate between *neotropicalis* (described from Chiapas) and *panamensis*." Its features suggest that it represents such an intergradient population, but Eisenmann points out that it possibly could represent an undescribed Colombian form related to *panamensis*, known from a June specimen from Colombia in the Academy of Natural Sciences of Philadelphia, and identified (by Meyer de Schauensee) as *C. m. henryi* prior to the description of *panamensis*.

## FAMILY TROCHILIDAE

*Chlorostilbon aureoventris aureoventris*. Glittering-bellied Emerald. Male, January 11. Testes enlarged. This specimen is very green, with little of the bronzy orange tinge of *aureoventris*, but does not match *lucidus* in throat color.

*Hylocharis chrysura*. Gilded Hummingbird. Three males, August 18 to 26, all with enlarged or much enlarged testes.

*Heliomaster furcifer*. Blue-tufted Starthroat. Male, January 3; female, August 26.

## FAMILY BUCCONIDAE

*Nystalus maculatus striatipectus*. Spot-backed Puffbird. Males, March 15, December 27; females, June 15, October 22, December 29. Only the October female had enlarged gonads. There is

so little difference (only in size, about 7 percent, hence overlap is great) between *striatipectus* and *pallidigula* of Mato Grosso that the latter ought to be merged into *striatipectus*. These birds are nearer Argentine than Mato Grosso birds in size.

## FAMILY PICIDAE

*Picumnus cirratus pilcomayensis*. White-barred Piculet. Male, August 26; female, March 30. Sparse ventral barring is found in these as in most specimens of this variable form.

*Picoides mixtus malleator*. Checkered Woodpecker. Two February males, eight females from January, February (three), May, September (two), and December. Only one bird, a female taken September 22, had enlarged gonads.

*Melanerpes candidus*. White Woodpecker. Seven males from March (two, one immature), May, August, October, and December (two); and females taken February 7 and August 1. The February and March birds are in early to middle molt stages, the May bird is completing its molt, and the October and December males had much enlarged testes.

*Melanerpes cactorum*. White-fronted Woodpecker. Males, March 2, July 26, August 11, October 13; and females, February 15, July 26 (two), December 18, and December 19. The February and March birds are in molt, and only the October male and one December female have enlarged gonads. Of these specimens, eight have a yellow throat and one lacks yellow there, showing polymorphism as noted previously (Short, 1975).

*Piculus chrysochloros chrysochloros*. Golden-green Woodpecker. Males, January 4, February 22, October 8, November 13; females, February 22, October 8; immature male, February 3; immature female, February 8. All February birds are in molt. The October to January specimens had enlarged gonads, especially so in those taken in October.

*Colaptes melanochloros nigroviridis*. Green-barred Flicker. Ten adult males taken February to December; 10 adult females taken in most months; and two juvenile males and two such females taken January 29 to February 20. Breeding birds represent late September to late November. Specimens in molt date from December 9 through February, the February adults being al-

most through the molt. There is great variation in the size of spots ventrally.

*Colaptes campestris campestris*  $\approx$  *campestris*. Campo Flicker. Four specimens were obtained on July 10 somewhere along the Río Negro of western Paraguay. These include two males and two females. The males are near *campestris*, one scoring "0.5," and the other "1" in throat color (Short, 1972). The females tend more toward *campestris*, both scoring "2," the intermediate score. Occurrence of these variable hybrids in the Paraguayan chaco is of interest, since the hybrid zone in eastern Paraguay centers about Rosario just east of the Río Negro (Short, 1972, p. 75).

*Dryocopus schulzi*. Black-bodied Woodpecker. Males, June 9 and 10, July 22, and October 28; females, February 10, March 25, May 24 (two), June 9, October 7. The October birds have enlarged gonads; the February and March specimens are in molt. I have seen 20 adults from the Paraguayan chaco, of which six males and four females have a fully white scapular stripe (*ship-toni* morph), three males and six females have the "normal" black scapular area, and one male shows a partial, white scapular. Thus, both morphs occur here, and throughout the range of the species (Short, 1975). The Lichtenau birds are variable. One female is markedly barred on the abdomen, and another female and a male show some barring. The wing coverts under the "wrist" vary from having slight black traces in one bird to strongly black, although most specimens show much more black than in *D. lineatus*. Throat color varies from white to gray-black, several birds having strong black streaking there. The auricular area is gray in some birds, black in others. The bill is almost completely white (except base) in two birds, is mixed in most, but is mainly gray-black in three.

*Campephilus leucopogon*. Cream-backed Woodpecker. Males, February 7, March 15, May 5, May 30, August 8; and females, March 15, May 5, December 8. The December female had an enlarged ovary, but already is commencing molt. The annual molt appears to last a long time, from early December until at least early May. I now find this species to be monotypic; the supposedly larger, southwestern (Argentine)

race *major* averages only very slightly larger than Paraguayan birds, with overlap virtually complete in all measurements (e.g., in wing length 18 Argentine birds range from 176 to 190 mm., and 20 Paraguayan and Bolivian specimens range from 173 to 193 mm.).

#### FAMILY DENDROCOLAPTIDAE

*Sittasomus griseicapillus griseicapillus*. Olivaceous Woodcreeper. Male, February 21; female, July 14.

*Drymornis bridgesi*. Scimitar-billed Woodcreeper. Males, February 13, October 13; females, February 14 and 21, June 13 (two). The February birds are in mid-molt, and the October male had enlarged testes.

*Xiphocolaptes major major*. Great Rufous Woodcreeper. Males, June 3, October 1 and 13; females, February 11, June 28. The February specimen is in late molt. The October males had enlarged (one much enlarged) testes. These birds are much paler, and more barred ventrally than the more northern subspecies *castaneus* (Mato Grosso specimens).

*Lepidocolaptes angustirostris angustirostris*. Narrow-billed Woodcreeper. Males, January 3, October 12; females, three, all February. The males had enlarged testes, the females are in molt. This subspecies is rather unsatisfactory, being somewhat intermediate between small, rufous, ventrally unmarked *bivittatus* of Mato Grosso and large, deeper brown, ventrally strongly marked *praedatus* of eastern and central Argentina and Uruguay.

*Campylorhamphus trochilirostris lafresnayanus*. Red-billed Scythebill. Males, October 7, November 13; females, January 19, October 13; immature male, January 21. The adults all have enlarged gonads, those of the males being very much enlarged. The immature bird has a short, dark bill. These birds are shorter billed (the bill is less massive, as well), and more buffy brown, less rufous than Argentine *hellmayri*, matching northern Paraguayan and Mato Grosso *lafresnayanus*.

#### FAMILY FURNARIIDAE

*Upucerthia certhioides estebani*. Chaco Earthcreeper. Male and female, February 22, perhaps

both immature. Both specimens are missing most rectrices. This species is very variable in size, even in comparably plumaged birds from a single locality. This race seems clinally variable in size, northern (Paraguayan) birds being smaller.

*Furnarius rufus paraguayae*. Rufous Hornero. Males, January 31, February 9, November 13; female, January 19. The November bird had enlarged testes, and the female is in molt.

*Furnarius cristatus*. Crested Hornero. Six males, January 13, February 22, and four from November, last four in breeding condition gonadally.

*Leptasthenura platensis*. Tufted Tit-spinetail. A questionable female taken August 28. The specimen, in fresh plumage, appears to represent the first record of this species for Paraguay (see Meyer de Schauensee, 1966).

*Schoeniophylax phryganophila phryganophila*. Chotoy Spinetail. A male and a female, June 15, and an immature male, December 29.

*Synallaxis albens australis*. Pale-breasted Spinetail. Males, January 18 and 26; females, August 28, February 21 and 22. One of the February birds is molting. Only the males have enlarged gonads.

*Certhiaxis pyrrhophia pyrrhophia*. Stripe-crowned Spinetail. Males, January 13, November 15; female, February 13; questionable male, February 3. Both males have much enlarged testes. The January male is in an early stage of (wing) molt; the February specimens are completing molt.

*Thripophaga baeri chacoensis*. Short-billed Canastero. Male, February 13. This form is found only in the Paraguayan chaco, but I find that Argentine birds from the chaco, and from Tucuman and Salta are intermediate between *chacoensis* and the eastern and southern Argentine subspecies *baeri*, tending to be smaller than the latter, with a finer, smaller bill.

*Phacellodomus sibilatrix*. Little Thornbird. Males, January 12, June 13; female, January 12. These birds are somewhat smaller than Argentine specimens, suggesting a size cline (increasing size) southward from Paraguay.

*Coryphistera alaudina*. Larklike Brushrunner. Males, February 15, November 29; females, February 15 and 21, and (two) June 13. Only the

November male had enlarged gonads. This is a variable series, two birds (February male, female of February 15) being very pale, another (November male) intermediate, and the others very dark in ventral streaking.

*Pseudoseisura lophotes argentina*. Brown Cacholote. Male, January 18; females, January 19, February 22, June 15; immature male, January 12. These birds, if anything, are darker than Argentine specimens of this race, thus differing strongly from pale Bolivian *P. l. lophotes*. The January adults had enlarged gonads.

#### FAMILY FORMICARIIDAE

*Taraba major major*. Great Antshrike. Males, January 14 and 19, February 25, October 12; females, January 21, February 25. All but the February birds had enlarged gonads.

*Thamnophilus doliatus radiatus*. Barred Antshrike. Males, February 22, March 6; females, February 22, March 6. The March male is in molt. Both males are weakly marked below; the abdomen is nearly unmarked and the throat is finely streaked. The females are exceptionally barred dorsally, the dark bars being weak but visible throughout; none of our other specimens match these in back barring. Possibly they represent immature individuals.

*Thamnophilus caerulescens paraguayensis*. Variable Antshrike. Males, January 19 to February 19 (three); female, February 13. All of these are in worn plumage with gonads indicated as enlarged, or much enlarged. This suggests later breeding in *caerulescens* than in *doliatus*. All three males are very pale (white with gray cast; slight tinge of buff on lower breast of one and on flanks of another) below and blackish gray above, hence clearly represent this subspecies.

*Myrmorchilus strigilatus*. Stripe-backed Antbird. Males, January 9, February 20 and 25, October 5; females, January 20, February 22 and 25, October 5, November 10. Only the November and January females have enlarged gonads. The February specimens are in molt, as is the January female. The population inhabiting Mato Grosso to Argentina appears inseparable (as "*susplicax*") from eastern Brazilian birds, individ-

ual variation being very great (see Naumburg, 1939).

#### FAMILY RHINOCRYPTIDAE

*Melanopareia maximiliani argentina*. Olive-crowned Crescentchest. Males, January 18, February 15; females, February 15 and 20, November 27. The January male and November female had enlarged gonads. The female of February 20 is in molt.

#### FAMILY COTINGIDAE

*Casiornis rufa*. Rufous Casiornis. Males, January 31 to February 22 (four); females, February 21, October 7. All but the October specimen are in molt (mid-molt to nearly completed molt).

*Xenopsaris albinucha albinucha*. White-naped Xenopsaris. Males, December 29 and January 2, but the latter may be a female (wing 60.5 mm.), although both noted as having enlarged gonads.

*Pachyrhamphus viridis viridis*. Green-backed Becard. Males, November 19, December 13; female, November 19. All are in breeding condition.

*Pachyrhamphus polychopterus spixii*. White-winged Becard. Males, December 9 to February 13 (six); females, January 7, March 30. All but the March bird had enlarged gonads. One male is labeled as a female, but is in full male plumage. The males vary greatly in color of underparts from gray with faint white spots to grayish black. The two blackish birds closely resemble *P. p. niger*, found from Bolivia northward, and may tend toward that form.

#### FAMILY TYRANNIDAE

*Agriornis microptera microptera*. Gray-bellied Shrike-tyrant. Male, August 23; females, August 23 (two), September 2. A migrant from the southwest, reported in the chaco only in the "winter" (July to September, see Steinbacher, 1962). Among specimens in the American Museum of Natural History are three June birds from Cuchacancha, at 11,000 feet, in Cochabamba, Bolivia. Two of these represent Andean *andicola*, but the third (AMNH 137415) is a very large contrastingly streak-throated bird lacking the buff tone of *andicola*. This seems to repre-

sent *microptera*, and indeed someone has written "near *microptera*" on the label. Thus, Patagonian *A. m. microptera* appears to winter far north and northeast of the range shown by Smith and Vuilleumier (1971, p. 212).

*Agriornis murina*. Mouse-brown Shrike-tyrant. Male, May 16; female, September 2. Wintering birds, presumably from Argentina. This species is removed from *Xolmis* and placed in *Agriornis* following Smith and Vuilleumier (1971).

*Xolmis cinerea*. Gray Monjita. Immature female, December 28. No adults were obtained.

*Xolmis irupero irupero*. White Monjita. Males, January 31, February 21; sex unknown, June 30. Both males are in full molt.

*Xolmis coronata*. Black-crowned Monjita. Male, May 4; females, May 30, June 13. Another species that winters in the chaco from farther south.

*Knipolegus striaticeps*. Cinereous Tyrant. Males, four in January, two in June; females, January 2, May 16 (two). One of the May females is labeled as a male, but is in full female plumage. The January female and two of the January males had enlarged gonads, indicating that this species breeds in the area (see Short, 1975). Older male specimens in AMNH are browner, less blackish gray than are these more recently collected birds.

*Knipolegus (Phaeotriccus) hudsoni*. Hudson's Black-tyrant. Male, October 1. This bird had moderately enlarged testes. Steinbacher (1962) reported a female of this rare species from Escalante in southwestern Paraguay, taken September 30, with ovary not enlarged. The male reported here has the label indicating enlarged testes, and the late dates of these supposed migrants (breeding known only in Patagonia) are puzzling.

*Hymenops perspicillata andina* and *H. p. perspicillata*. Spectacled Tyrant. Males, July 20 (two); females, June 3, July 20. The species appears not to breed in Paraguay. Steinbacher (1962) noted a female with enlarged ovary taken at Orloff, Paraguay, on October 18, a rather late date, but since breeding is known to occur so near Paraguay (adjacent Formosa, Argentina), this could represent a very late southward migrant. On the other hand, some of the specimens reported here, contrary to those of Steinbacher,

appear to represent the Andean race *andina* that may linger for a longer time on the wintering ground. The four specimens measure 77 to 92 mm. in wing length, the females agreeing well with *perspicillata*. The males appear small for *andina*, measuring only 91 and 92 mm. in wing length, but both are very black-winged, showing the restriction of white there that is typical of *andina*. Possibly these males represent intermediates between the two races.

*Fluvicola pica albiventer*. Pied Water-tyrant. Males, January 3, December 1; female, December 1; immature males, January 13, February 21. All adults had enlarged gonads. The immature birds are brownish black above, with buffy edgings on the wing feathers. These indications of breeding activity serve as the northernmost breeding report for this race in the western part of its range, although November adults are known from Mato Grosso, suggesting breeding.

*Pyrocephalus rubinus rubinus*. Vermilion Flycatcher. Males, April 28, June 30, September 21. The April and June birds still have a mainly brown crown and some breast streaking, indicating immaturity.

*Satrapa icterophrys*. Yellow-browed Tyrant. Males, January 20, April 23; female, February 9. The February bird is in molt, that from April is completing the molt.

*Machetornis rixosus rixosus*. Cattle Tyrant. Male, October 15; female, November 15. Both of these had enlarged gonads.

*Tyrannus savanna savanna*. Fork-tailed Flycatcher. Males, January 13 (two), October 27; females, February 10, October 27. All but the February specimen had enlarged gonads.

*Tyrannus melancholicus melancholicus*. Tropical Kingbird. Male, October 31; females, January 3, April 23, October 31, December 23. The October and January kingbirds had enlarged gonads (but the December female did not).

*Empidonomus aurantioatristatus aurantioatristatus*. Crowned Slaty-flycatcher. Males, January 2, February 23, October 12, December 31; females, January 2 and 3. Much-enlarged gonads were noted for all December and January birds except a female (ovary moderately enlarged), and the October male had enlarged testes. These specimens tend to be rather small for this subspecies, but they are deep gray below

and brownish above, matching it rather than paler northeastern Brazilian *pallidiventris*.

*Megarhynchus pitangua pitangua*. Boat-billed Flycatcher. Male, March 9; females, January 28, March 9; immature male, March 9; immature females, January 28, March 9. The March adults are in initial stages of molt.

*Myiodynastes maculatus solitarius*. Streaked Flycatcher. Males, January 18, October 27; females, January 3 and 5, December 11. All but one of these, a January female, had enlarged gonads and the ovary of the December female was much enlarged. In Short (1975, p. 273) I mistakenly referred to this form as *M. m. maculatus*, although *solitarius* is indeed the subspecies discussed and described.

*Pitangus sulphuratus bolivianus*. Great Kiskadee. Males, January 20, May 6, October 31; females, June 13, October 31, December 9. Enlarged gonads were noted for all but the May specimen, the December female having a much enlarged ovary. The inner primaries are incoming in the January male. These birds are paler above but brighter yellow below than eastern *maximiliani* and match Bolivian specimens, so must be assigned to this race rather than to *maximiliani* (see Steinbacher, 1962, p. 76), or *argentina*, although showing tendencies toward those races.

*Myiarchus tyrannulus tyrannulus*. Brown-crested Flycatcher. Males, January 5, February 9 and 25, May 11 and 16, December 31; females, January 5 and 11, December 31; immature male, January 11. Enlarged gonads were noted in all but one female from January; much-enlarged gonads were found in the December flycatchers and one February flycatcher. The May birds had molted. The breeding male taken in early February is in the initial stages of molt, whereas the late February male is over halfway through the wing (primary) molt.

*Myiarchus swainsoni ferocior*  $\leq$  *swainsoni*. Swainson's Flycatcher. Males, five from early January, November 27, December 31; female, December 22. Much-enlarged testes were noted in all males except one January bird with testes only "enlarged," another January male showing no testicular growth, and the November specimen, also without enlarged testes. The female was not in breeding condition. None of these appear to be in molt. They were identified by

Wesley E. Lanyon, who will report on this complex elsewhere. The other common *Myiarchus ferox*, of the eastern edge of the chaco, was not obtained by Unger; specimens of "*ferox*" reported by Steinbacher (1962, 1968) from the Paraguayan chaco appear, by the measurements given, to represent *M. swainsoni*, not *M. ferox* (*vide* Lanyon).

*Empidonax euleri argentinus*. Euler's Flycatcher. Female, October 11 (no indication of enlarged ovary).

*Cnemotriccus fuscatus bimaculatus*. Fuscous Flycatcher. Female, February 13; unsexed bird with much enlarged gonads (sex symbol lacking on label!), October 2. The February bird is molting. The unsexed specimen is considerably larger than the other, and may represent a male. Recently taken specimens tend to be grayer brown, less deeply brown than older specimens.

*Todirostrum margaritaceiventer margaritaceiventer*. Pearly-vented Tody-tyrant. Female, January 3.

*Euscarthmus meloryphus meloryphus*. Tawny-crowned Pygmy-tyrant. Female, June 18. John Fitzpatrick has pointed out to me that this genus actually is comprised of two species (see Mees, 1968, pp. 105-106, *contra* Short, 1975), apparently widespread Amazonian *rufomarginatus*, and *meloryphus*, generally south of the former, but with seemingly extensive overlap between them.

*Pseudocolopteryx acutipennis*. Subtropical Doradito. Male, April 27; female, December 9. These represent the first and second Paraguayan records of this presumed migrant from the Andean foothills of Argentina and Bolivia (Short, 1972b, 1975).

*Habrua pectoralis pectoralis*. Bearded Tachuri. Males, February 21, August 10; females, October 13.

*Stigmatura budytoides inzonata*. Greater Wagtail-tyrant. Males, January 10, February 21. The February specimen is in molt.

*Serpophaga subcristata subcristata*. White-crested Tyrannulet. Males, January 13, August 27; female, August 27. All three birds are of the yellow-bellied, *subcristata* morph, not of the morph "*munda*" (Short, 1975).

*Elaenia spectabilis spectabilis*. Large Elaenia. Males, January 5 (two), November 29, and

December 23 to 31 (four); females, September 9, December 9 and 23. The gonads were much enlarged in all males except that from November (testes moderately enlarged), and in one December female; the other females had the ovary enlarged slightly (December) or not at all (September). Apparently no specimens of the Small-billed Elaenia (*Elaenia parvirostris*) were obtained.

*Suiriri suiriri*. Suiriri Flycatcher. Males, January 4, February 22, December 29. Only the January bird had enlarged testes. Molt had commenced in the January male, and the February specimen is in mid-molt.

*Sublegatus modestus modestus*. Scrub Flycatcher. Males, February 15, December 31; females, January 2, December 31; immature males, January 12, December 19. The December and January specimens had gonads enlarged or much enlarged, and the February bird is in molt. I am unable to separate the race *brevirostris* from *modestus* (see Pinto, 1944).

#### FAMILY HIRUNDINIDAE

*Tachycineta leucorrhoa*. White-rumped Swallow. Male, May 30; female, May 30. Both are in final stages of molt.

#### FAMILY CORVIDAE

*Cyanocorax chrysops chrysops*. Plush-crested Jay. Male, December 28; female, June 3. The male is molting heavily.

#### FAMILY TROGLODYTIDAE

*Troglodytes aedon rex*. House Wren. Male, March 15; female, February 3. The female had an enlarged ovary. The male is in heavy molt. Eastern Paraguayan birds seem separable readily from chaco specimens, as browner *T. a. musculus*.

#### FAMILY MIMIDAE

*Mimus saturninus modulator*. Chalk-browed Mockingbird. Male, April 25; females, April 25 (two), November 29. The April specimens are in late stages of molt, and the November female had a large ovary. Worn birds are very much browner, less gray than freshly molted specimens.

*Mimus triurus*. White-banded Mockingbird.

Male, June 13; female, August 27. There is a strong difference in size between the sexes, exemplified by these rather comparably plumaged birds; the male measures 112 mm., the female, 96 mm., in wing length.

#### FAMILY MUSCICAPIDAE

*Turdus amaurochalinus*. Dusky Thrush. Males, February 10, December 11 (two); females, November 6, December 11. All but the February specimen had enlarged gonads. Bill color varies in these specimens from fully yellow to horn-brown.

*Poliophtila dumicola dumicola*. Masked Gnatcatcher. Males, May 16, June 18, November 29. The November bird has enlarged testes.

#### FAMILY MOTACILLIDAE

*Anthus lutescens lutescens*. Yellowish Pipit. Male, February 16. In the course of identifying this specimen I found a number of previously misidentified specimens of *Anthus chacoensis*, including specimens taken in the breeding season (five birds, January 1 to 10) near Leones, Córdoba, Argentina, in sympatry with *A. lutescens*. Thus, *A. chacoensis* appears to be a valid species. The specimen of *A. l. lutescens* reported here is in the final stage of molt.

#### FAMILY PLOCEIDAE

*Passer domesticus domesticus*. House Sparrow. Male, May 1; females, January 12 and 28. All three sparrows have enlarged gonads, one of the females having the ovary much enlarged.

#### FAMILY VIREONIDAE

*Cyclarhis gujanensis viridis*. Rufous-browed Peppershrike. Males, January 3 and 18, June 15, November 13; female, August 27. Enlarged or much enlarged testes were noted in the January and November males.

*Vireo olivaceus chivi*. Red-eyed Vireo. Males, January 9, February 21 (two), November 7; female, January 9. Much enlarged gonads were found in all November and January vireos. The

February males are in worn plumage, not yet molting.

#### FAMILY ICTERIDAE

*Dolichonyx oryzivorus*. Bobolink. Males, January 14, November 30 (two); female, January 14. All are in full winter plumage. The resemblance of this plumage, particularly the head pattern and pattern of the hindneck, as well as bill structure, to that of females of *Sturnella supercilialis* is noteworthy.

*Molothrus bonariensis bonariensis*. Shiny Cowbird. Males, May 5, October 11; females, May 16, October 19. The October birds had enlarged gonads; the May male is in molt.

*Molothrus rufoaxillaris*. Screaming Cowbird. Males, November 1 and 7; females, May 16, October 31, November 1; immature male, May 16. The October and November birds all had enlarged gonads. The May specimens are in molt, the adult being farther along than the young bird, which shows the rusty-edged outer several primaries and four secondaries. Western (western Argentina, chaco) birds, including these Paraguayan specimens, are somewhat smaller billed than are specimens from farther east, but the difference is not great and no other features seem to show variation with this orientation.

*Molothrus badius badius*. Bay-winged Cowbird. Males, January 9, October 18, November 11 and 30. All have enlarged testes, the January specimen having much enlarged testes. These specimens are easily distinguished from Bolivian *bolivianus* because they are at the small, gray extremes of *M. b. badius*. Noteworthy is the marked blackish face mask that extends behind the eye in these specimens, whereas it usually terminates at the eye.

*Sturnella supercilialis*. Southern Marsh Meadowlark. Females, April 25 and 30. Both are in fresh plumage.

*Agelaius ruficapillus ruficapillus*. Chestnut-capped Marsh Blackbird. Subadult male, December 27; females, December 5 (two). All had enlarged gonads. The male has some brown feathering on the breast, abdomen, and scapular areas, and its crown patch is incompletely developed, but otherwise it is colored as adult males.

*Gnorimopsar chopi chopi*. Chopi Blackbird.

Males, January 4 (two), January 9 (two), August 26, October 26; female, January 4. Three January males had large testes, and the October bird had them much enlarged.

*Icterus icterus strictifrons*. Troupial. Male, December 1; females, January 20, October 7; sex unknown, October 7. Gonads were enlarged in the January female and much enlarged in the December male. Three of the specimens have a narrow black band across the back; this is discontinuous in the other bird. Since *strictifrons* barely is distinguishable from *croconotus* (paler than latter, more often with black on back), it is not possible to define a third form ("paraguayae").

*Icterus cayanensis pyrrhopectus*. Epaulet Oriole. Males, January 20, February 13 and 21, July 11, October 14; females, January 18, May 16. The October male had much enlarged testes, as did the January male; one February (13) bird had enlarged testes. The January male is in mid-molt.

*Cacicus chrysopterus*. Golden-winged Cacique. Male, female, July 26.

*Cacicus solitarius*. Solitary Black Cacique. Males, January 20, October 5, December 8 and 23. The December and January males showed enlarged testes. Steinbacher (1962) provided an account of the nests of this and the preceding species.

#### FAMILY PARULIDAE

*Parula americana pitiayumi*. Parula Warbler. Males, February 13, June 8 and 18; female, October 12.

*Geothlypis aequinoctialis velata*. Masked Yellowthroat. Female, October 17, enlarged ovary.

#### FAMILY EMBERIZIDAE

*Tersina viridis viridis*. Swallow-tanager. Females, May 2 (two). First chaco records, reported earlier (Short, 1972).

*Euphonia chlorotica amazonica*  $\geq$  *serrirostris*. Purple-throated Euphonia. Males, January 4, July 12, September 4; female, July 8. The January male had much enlarged testes. The female, in fresh plumage, is completely yellow with an olive cast ventrally, matching *E. c. amazonica* (its bill

is large, not small as in *chlorotica*), and it shows no signs of whitish that would indicate a tendency toward *serrirostris*. It resembles the most yellow-green of Mato Grosso specimens that variously are treated as *amazonica* or *amazonica*  $\geq$  *serrirostris* (latter *fide* K. C. Parkes). The males are variable, one being especially blue above, as in *serrirostris*, the others showing much purplish as well (the July male is not fully adult, showing some greenish feathering dorsally). Thus, in contrast to the situation farther south in the Paraguayan chaco, and in eastern Paraguay, where populations ascribable to *serrirostris* are found, these birds seem to represent a population intergradient between *amazonica* and *serrirostris*.

*Thraupis sayaca sayaca*. Sayaca Tanager. Males, August 1, October 6 and 31, November 6 and 10; female (labeled "male"), August 1. Two males, one from late October and one from November, are in breeding condition. These resemble *sayaca* very closely, as I previously have noted (1975), but several specimens show pale, grayish indications of influence of Bolivian *obscura*.

*Piranga flava flava*. Hepatic Tanager. Males, February 13, October 17; females, February 13, November 10 and 17; subadult male, January 4. The subadult male and the October male had enlarged testes, and the November females each had an enlarged ovary. February specimens are in early stages of molt.

*Saltator coerulescens coerulescens*. Grayish Saltator. Two males, December 11, both with enlarged testes.

*Saltator aurantirostris aurantirostris*. Golden-billed Saltator. Males, four in January, February 2, November 13. All but the February specimen had enlarged testes. Bill color ranges to golden orange from yellowish in these skins.

*Paroaria coronata*. Red-crested Cardinal. Males, November 2, 3; females, April 24, November 2. The November birds had enlarged or much enlarged gonads; the April specimen is in fresh plumage. See Short, 1975, p. 309, for reason why this species is treated as monotypic.

*Pheucticus aureoventris aureoventris*. Black-backed Grosbeak. Males, January 5 and 9, June 15, October 15 and 27. Gonads much enlarged in January 9 and October 27 males, moderately so in other October and January birds. Although



black-rumped, several of these specimens show yellowish at the base of the black rump feathers, and one has feathers slightly yellow-tipped.

*Passerina brissonii sterea*  $\approx$  *argentina*. Ultramarine Grosbeak. Adult male, May 20, subadult males, January 5, February 15. Both subadults show some black about the head or back; the February bird had enlarged gonads, the testes of the January specimen were much enlarged. The specimens approach smaller, finer billed, *sterea* more than they resemble western *argentina*, but they show tendencies toward the latter (in pale color of subadults).

*Volatinia jacarina jacarina*. Blue-black Grassquit. Adult males, January 18, 26, February 8, December 26; subadult male, November 27; females, January 18, 26, February 21. All but the February female had enlarged gonads (much enlarged in January 18, February 8 males, and female, January 18). The subadult male has brown-edged, black feathers, but mainly is black.

*Sporophila lineola lineola*. Lined Seedeater. Adult males, January 12, February 15 (two), November 30, December 18; females, January 13, February 15 (two), November 30, December 13; subadult male, December 23. All adults have enlarged gonads. The subadult male is in full "female" plumage.

*Sporophila caerulescens caerulescens*. Double collared Seedeater. Males, February 15, March 4 and 5, November 30; females, January 13, March 3, December 11; subadult males, January 9, December 8 and 18; immature male, April 27. The adults and subadults all were in breeding condition (gonads enlarged; very large in male of March 4, females of March 3 and December 11, and subadult male of January 9).

*Sporophila hypoxantha*. Tawny-bellied Seedeater. Female, May 16. Elsewhere (Short, 1975, pp. 313-314) I stated my reasons for considering *S. ruficollis* a "morph" of *S. hypoxantha*. The female reported here cannot be assigned definitely to either *ruficollis* or *hypoxantha* if those were to be treated as separate species, for their females are indistinguishable. Males differ only in having or in lacking a black throat patch.

*Sicalis flaveola pelzelni*. Saffron Finch. Males, February 12, September 7, November 8; missexed female, December 9. Enlarged gonads were noted in the November to February birds.

*Sicalis luteola luteiventris*. Grassland Yellow-finch. Female, April 27. In fresh plumage.

*Lophospingus pusillus*. Black-crested Finch. Male, October 15; females, June 15 (two, one missexed), 18, 20, and 28. The male had enlarged testes, but is peculiarly colored, being brownish backed (resembling female coloring) and having a mainly brown crown with blackish feathering on its sides.

*Coryphospingus cucullatus fargoi*. Red-crested Finch. Males, February 25, October 12; females, January 11, July 1. Both males had enlarged testes. The females are rather pale in comparison with other specimens of this race at my disposal.

*Ammodramus humeralis xanthornus*. Grassland Sparrow. Males, January 18, February 15 and 20, November 12. All had enlarged testes; those of both the bird from January and the one from February being much enlarged.

*Aimophila strigiceps strigiceps*. Stripe-capped Sparrow. Male, January 31; female, March 29. These were reported elsewhere (Short, In press).

*Junco capensis hypoleuca* (includes *mellea*). Rufous-collared Sparrow. Males, February 20, August 27; females, August 27, September 25. The February and September birds had enlarged gonads. Examination of these and four other Paraguayan chaco specimens, in comparison with *J. c. hypoleuca* indicates that traits of chaco *mellea* noted by Wetmore (1922) do not hold, or represent slight tendencies. Of the characters Wetmore mentioned, I note that only the paleness of color of "*mellea*" is worthy of consideration, and this represents a tendency matched in various Tucuman and Salta, Argentina, *hypoleuca*. Thus, I treat *mellea* as a synonym of *hypoleuca*.

*Embernagra platensis olivascens*. Great Pampafinch. Immature female, May 16. This specimen is molting into adult plumage, but still shows the yellowish about the throat found in juvenal birds, and its crown is brown-striped. Its back is unstreaked, and it matches the western race *olivascens*. Meyer de Schauensee (1966) did not list western Paraguay in the range of this species.

*Poospiza torquata pectoralis*. Ringed Warbling-finch. Male, June 15; female, June 20. Presumably these represent wintering birds from farther south. This species bears a striking similarity to *Lophospingus pusillus* in overall pattern

and bill shape (e.g., compare with grayer females of *L. pusillus*).

*Poospiza melanoleuca*. Black-capped Warbling-finch. Males, February 3 and 21, April 8, June 13; females, January 12, February 3, June 13. The male of February 3 had much-enlarged testes, and the ovary was enlarged in the January and February females. The late February male is in molt.

*Saltatricula multicolor*. Many-colored Chaco-finch. Males, January 5 and 26, February 15, March 4, November 18, December 22; females, February 15, August 11. November through February specimens had enlarged gonads. I have noted that bill color has undergone fading in the course of the two or three years that the specimens have been in the collection, the orange-gold or golden orange giving way to yellow or golden yellow in most of the specimens.

#### FAMILY CARDUELIDAE

*Carduelis magellanica alleni*. Hooded Siskin. Males, August 18, September 12, November 16; females, September 4 (two); subadult male, November 6. No breeding activity indicated.

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